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First Palearctic record of the endangered Bermuda Petrel *Pterodroma cahow*

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Many Procellariiformes make regular long-distance movements at sea (up to several thousands of km) during both breeding and non-breeding periods (González-Solís *et al.* 2000, Weimerskirch *et al.* 1999, Weimerskirch & Wilson 2000). The Bermuda Petrel *Pterodroma cahow*, endemic to Bermuda (in the subtropical north-western Atlantic), is classified as Endangered according to IUCN Red List criteria (BirdLife International 2000), with a few tens of breeding pairs (BirdLife International 2000, Madeiros 2002). Its movements during the non-breeding period are poorly known, dispersal being supposed to occur towards the north or the north-west in the subtropical western Atlantic (del Hoyo *et al.* 1992), as far as off North Carolina (Wingate *et al.* 1998). Here, we report the first record of a Bermuda Petrel in the Palearctic.

On 17 November 2002, during the daytime, MCM incidentally captured a gadfly petrel (genus *Pterodroma*) in a burrow on an offshore islet free of introduced predators, in the Azores archipelago. The bird was ringed using an individually numbered metal ring, measured and photographed (Figs. 1–3). Measurements taken were: wing length (flattened chord) using a stopped ruler correct to 1 mm; tarsus length; bill (exposed culmen length, bill depth at gonys, bill depth at nostrils) and total head length (head plus bill) using a vernier calliper (to 0.1 mm). A 100-ml blood sample was also taken (under license) for future genetic studies. The bird was released into its burrow after handling.

The following description was taken. **Upperparts** dark to medium grey, gradually becoming blackish grey on nape and crown (Figs. 1 and 2); tail also dark grey but uppertail-coverts formed a narrow pale creamish, rather than greyish, crescent; forehead white with few black mottlings, the white almost extending to eyes; lores black near eye, white near bill and gape; ear-coverts black (Fig. 1). **Underparts** from chin to undertail-coverts, and flanks, pure white; sides of breast grey, but grey markings did not join to form a collar; no brood patch. **Wings**—upperwing dark grey without obvious markings (Fig. 2); axillaries white, marginal and lesser underwing-coverts blackish; lesser under secondary-coverts formed broad dark bar along forearm; median underwing-coverts white; greater underwing-coverts white but some dark spots visible in subterminal position on the greater

TABLE 1

Measurements of *Pterodroma cahow*, *P. feae* and *P. mollis*. Mean values (and ranges in brackets) are given. All values are expressed in mm.

	<i>P. cahow</i> (Azores)	<i>P. cahow</i> (Bermuda)	<i>P. cahow</i> (Bermuda)	<i>P. feae</i> (Azores)	<i>P. feae</i> (Bugio)	<i>P. feae</i> (Bugio)	<i>P. mollis dubia</i> (Crozet)
Wing	269 ¹	260.7 (260–262) ²	(245–265)	269.75 (269.5–270)	267.8 (258–282)	266.4 (262–270)	248.2 (244–252)
Tail	–	120.9 (118–123.8)	–	120 (112–128)	110.3 (106–155)	108.5 (102–111)	112.2 (108–116)
Tarsus	35.9	35.4 (34.4–37.3)	–	35.3 (35.0–35.6)	35.8 (32.0–41.0)	35.9 (34.3–38.2)	36.8 (33.7–39.6)
Culmen	28.3	28.6 (27.4–29.6)	28.1 (25.7–30.4)	29.1 (28.5–29.7)	29.1 (27.0–31.0)	28.4 (27.2–29.9)	28.4 (27.1–29.3)
Gonys	12.2	–	11.6 (10.7–12.3)	12.8	–	12.4 (11.2–13.2)	11.3 (10.3–12.0)
Nostrils	14.0	–	12.4 (11.1–13.3)	15.0	14.6 (13.0–16.2)	14.3 (13.4–15.6)	13.0 (12.1–14.8)
Total head	75.6	–	–	73.1	–	72.4 (71.3–73.3)	73.1 (72.2–75.1)
Middle toe plus claw	–	47.1 (46.2–49.0)	–	–	–	–	–
Sample size	1	3	8–11	1–2	29–40	3–5	4–11
Source ³	1	2	3	4, 5	6	1	1

1 Flattened wing chord.

2 The sample included a fledgling.

3 1: this study (*P. feae* and *P. mollis* specimens are from the Muséum National d'Histoire Naturelle de Paris); 2: Murphy & Mowbray (1951, specimens); 3: Wingate *et al.* (1998, specimens); 4: Bibby & del Nevo (1991, live bird); 5: Monteiro & Furness (1995, live bird); 6: Zino & Zino (1986, live birds).



Figure 1. Side view of the Bermuda Petrel captured in the Azores (J. Bried)

Figure 2. Upperparts of the same individual (J. Bried)

Figure 3. Underparts of the same individual (J. Bried)

under secondary-coverts and outermost greater under primary-coverts (Fig. 3). **Legs** pink; toes and webs with proximal third pink and distal two-thirds black, except for entirely black outer toe. **Bill** black with moderately arched maxillary unguis.

This bird was clearly larger than Madeiran Petrel *P. madeira* (see Monteiro & Furness 1995, p. 11) and slightly larger than Subantarctic Soft-plumaged Petrel *P. mollis dubia*, but similar in size to Fea's Petrel *P. feae* (Table 1). Its measurements fell at the upper range limit for Bermuda Petrel specimens (Table 1), but well within the range of the values obtained from 12 live adults (J. L. Madeiros pers. comm.).

The plumage characters of this bird, especially the underwing pattern with the dark 'thumb print' mark on the outer greater under primary-coverts and the pale band at the base of the tail (Wingate *et al.* 1998), its measurements, and its more slender bill than in Fea's Petrel (see, e.g. photograph in Monteiro & Furness 1995), confirmed it as *Pterodroma cahow*.

This individual seemed robust and healthy. Although not weighed, a manual inspection showed that it was carrying fat reserves and had no apparent ectoparasites. The petrel was recaptured in the same burrow on 21 November 2002 at c.22.00 h by JB after uttering a moaning call, apparently in response to the vocalisations of a Little Shearwater *Puffinus assimilis baroli* in a neighbouring burrow. After we checked the ring number, the bird was again released into its burrow. During another visit to the islet on 31 January 2003, JB found the burrow empty and did not find Bermuda Petrels in any neighbouring burrows.

Discussion

Our capture of a Bermuda Petrel on 17 November 2002 represents, to the best of our knowledge, the first proven record of this species for the Palearctic. In addition, the recapture of this individual in the same burrow four days later suggests that it exhibited some level of site tenacity. The burrow was situated on a slope oriented eastwards, c.20 m above sea level.

When breeding, Bermuda Petrels return ashore at the onset of the pre-laying period in late October and November; most eggs are laid during the first fortnight of January and chicks fledge in late May and June (Palmer 1962, del Hoyo *et al.* 1992). The Azorean individual was thus occupying a burrow at the same period as its pre-laying conspecifics in Bermuda. This behaviour, together with its fat reserves, suggests that it was in pre-laying condition as well. In addition, its behaviour and its measurements (within the top 20% of the range) made it likely that it was a male (J. L. Madeiros & D. B. Wingate pers. comm.); however, this still needs confirmation through blood analyses. The scarcity of at-sea observations of Bermuda Petrel (Wingate *et al.* 1998) makes it impossible to know whether or not the Azores area is part of the normal range of this species.

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